AFTA General Observer Program

First ideas and Report Outline

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AFTA Report: GO Program Strategy

- Emphasize the broad nature and high impact of GO science
  - 21st Century “Great Observatory class” science: Moves much science into the statistical realm
  - Complementary to JWST (area / depth) and LSST (wavelength)
  - GO program alone is very exciting: big improvement over 1.x-m!
- GO science comes in 2 flavors: Dedicated observations and using DE / Galactic Plane / microlensing survey data
- Examine GO programs in WFIRST SDT report and Princeton white paper
- Add other programs exploiting unique AFTA capabilities with potentially high scientific impact
  - Embedded galactic star formation regions stand out
- Also include a paragraph on the updated 1 page descriptions submitted by the greater community. Include the actual 1 page descriptions in an Appendix

Sample GO Programs: Initial ideas

- WFIRST SDT report & Princeton white paper tweaks
  - Milky Way Stellar Census (look down a galactic arm?)
  - Mass function of 10 - 100 Myr open clusters down to BDs
  - Probing the hydrogen burning limit in globular clusters
  - Stellar populations and substructure of Galactic bulge, halo, and nearby galaxies: Resolve individual stars, construct density maps and CMDs
  - Map core of Virgo cluster (16 Mpc) and characterize the local volume to 12 Mpc
  - Followup of galaxy clusters found in high latitude & other survey fields (evolution). Lensing also tests ΛCDM?
  - LSST deep drilling fields: Early structure formation via AFTA medium deep fields in near-IR wavelengths
  - Cosmic dawn: High z QSO luminosity function (DE WF survey) and High z galazy LF, and Ly α emitters in HL/WL surveys for star formation

GO Program: Additional thoughts

- Additional high impact programs not in 1st reports
  - Complete survey of low and intermediate mass star forming regions with d < 1 kpc: better sensitivity, spatial res, and spatial completeness than existing 2MASS, UKIDSS, etc.
  - High mass obscured galactic star formation d > 1 kpc to probe top end of IMF
  - Perhaps coronography of AGN host galaxies
- One Page Community Submissions

AFTA GO Program Report Section

- 3 pages total allocation
- Introductory paragraph to pitch how the unique AFTA capabilities enable high impact science from the solar system to galaxy clusters
- Broad but not deep approach
  - very short descriptions
  - Possible table / matrix of sample programs against unique AFTA capabilities
- Final paragraph on 1 page submissions, including explanation of their solicitation and updating
- Include 1 page submissions in a report Appendix

Outstanding Issues

- Any special solar system pointing and tracking constraints?
  - High tracking rates not anticipated
- Scheduling limitations for variability studies?
  - Synoptic / periodic scheduling in general to sample various time scales
  - Coordination with other observatories for simultaneous or time specific observations
  - Not considering rapid response to transients discovered elsewhere